



# UV & EB Technology North America

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Executive Director



# Do you see UV/EB Everywhere?

Cummins Plans Expansion, 290 Jobs At Ind. Plant

New fabric coating actively shrugs off gunk

Polymer concrete

Improving banknote security with organic electronics

China Shifting Manufacturing To US.

Assembly Required: Local Motors Is Crowd sourcing Vehicles

The future for protecting pipelines

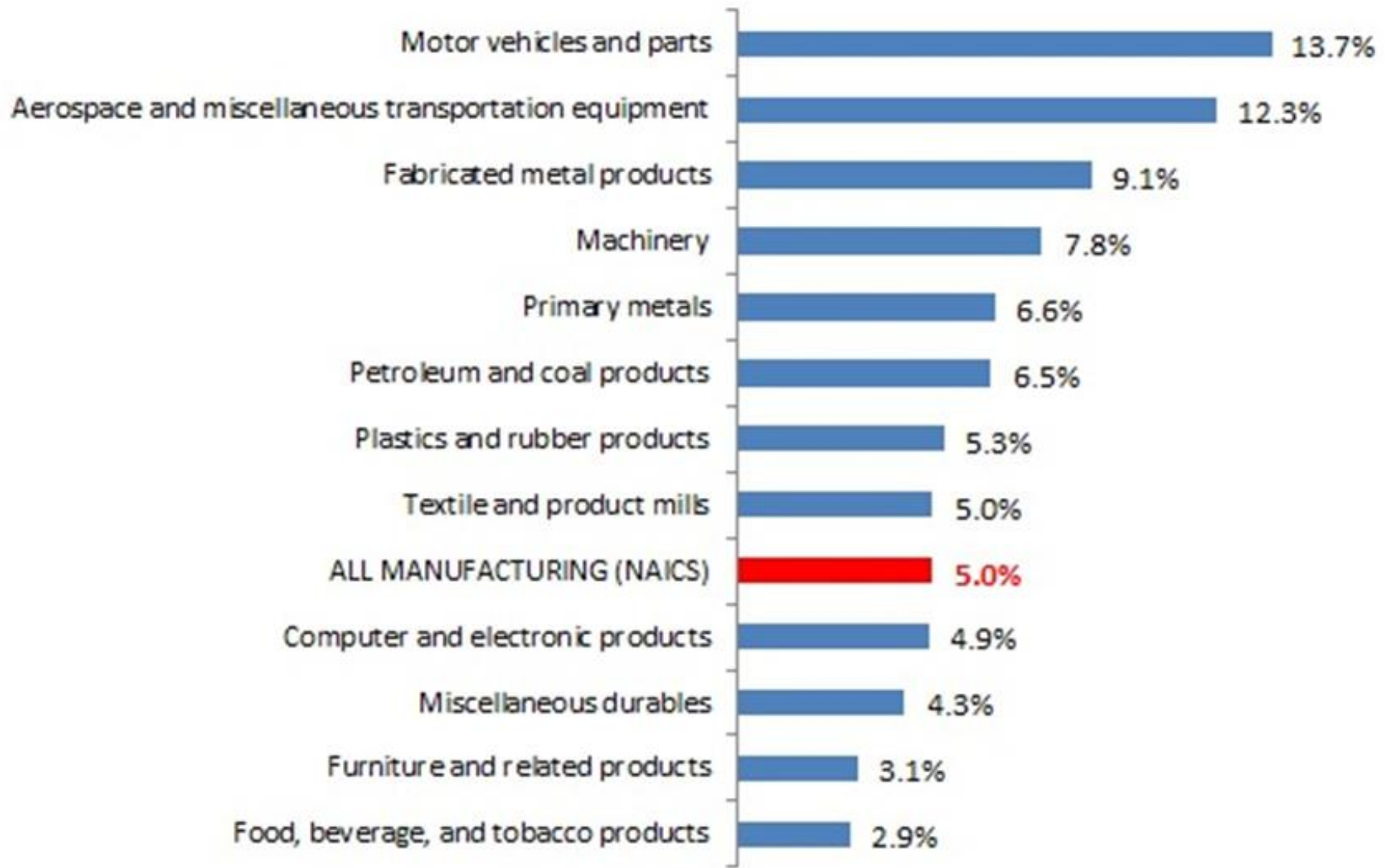
Carbon Fiber May Be Electric Cars' Killer App

Arkema, French research outfit to work on advanced electronics

Natural Gas – True Game Changer

Batman inspired grappling hook created at BYU

## Manufacturing Sectors with the Fastest Production Growth, March 2011 to March 2012





## Market Survey

**Are you currently working with  
UV/EB curable products?**



51%



31%



**If you have evaluated UV/EB, but are not currently working with them, which reason BEST explains why you aren't pursuing?**



52%

Plan to in the  
future

33%

Plan to in the  
future



## How important do you think the following factors are to adopting UV/EB curable products



-Speed

-Better physical prop.

-High Benefit/Cost

-Reduced VOCs

-Speed

-Better physical prop.



## Which of the following other materials do you currently work with?



- Water – 62%
- Solvent – 54%
- High solids – 36%

- Water – 66%
- Solvent – 60%
- High solids – 46%

# Sustainability in The Flexo Industry 2012

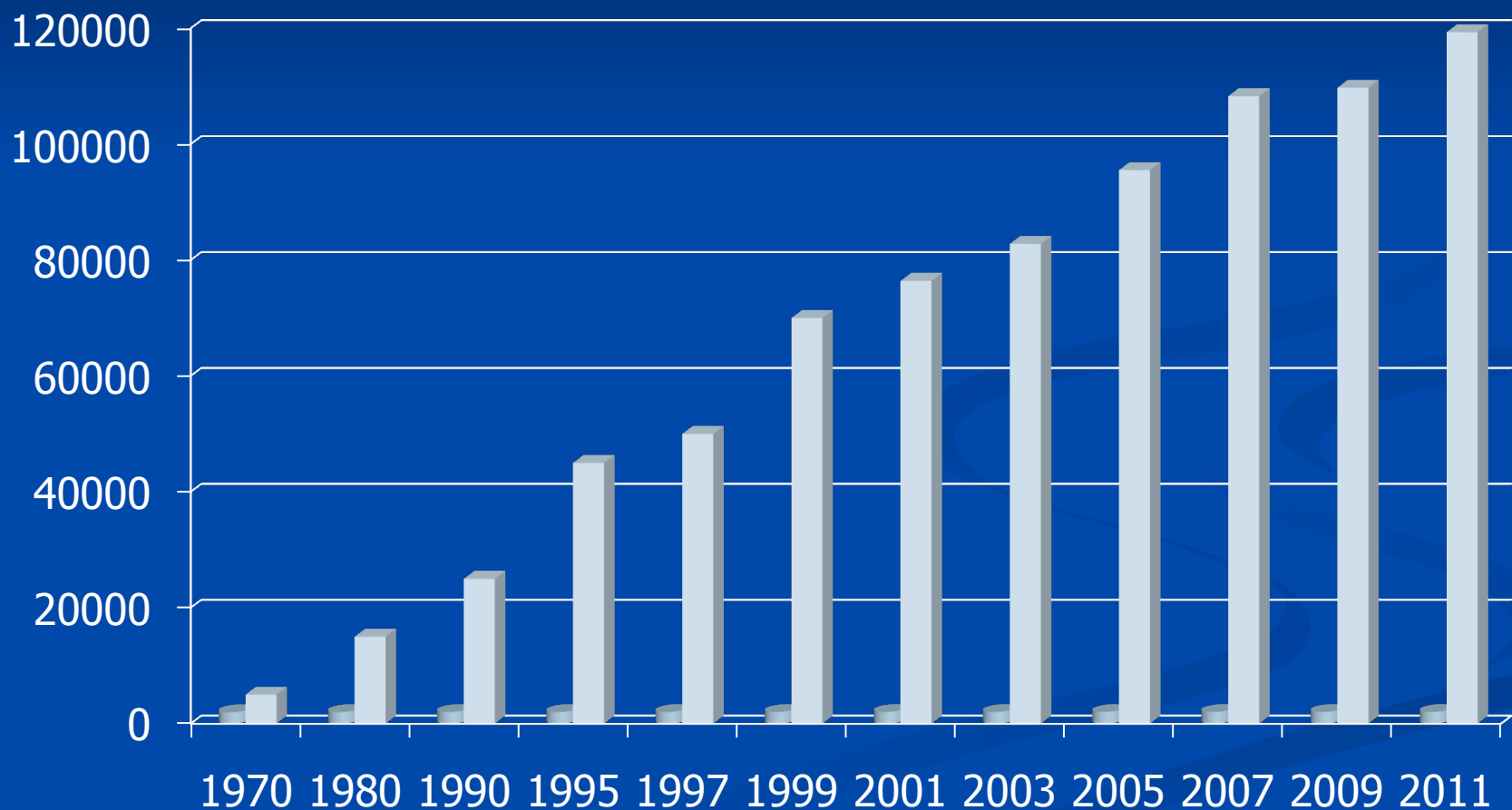
[www.flexomag.com](http://www.flexomag.com)

“Shift from solvent to UV/EB”

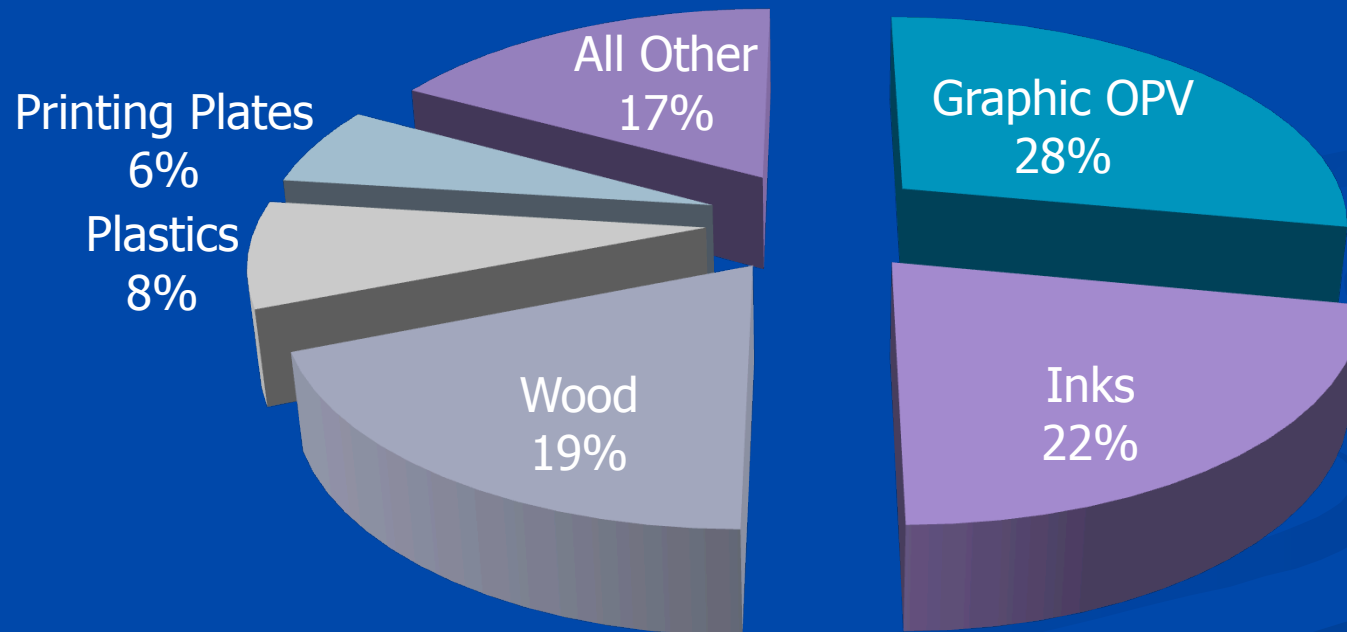
	<u>Solvent</u>	<u>Water</u>	<u>UV/EB</u>
Flexible Packaging Printers	67%	52%	31%
Label Printers	10%	94%	87%



# UV/EB Formulated Product Usage North America (Metric Tons)



# UV/EB Formulated Product Market North America ~ \$1 Billion



By % of market, metric tons

# Fastest Emerging Users of UV/EB Technology



**China**  
**India**  
**Brazil**

**USA**  
**Mexico**  
**Germany**  
**Japan**  
**Korea**

**Vietnam**  
**Turkey**  
**Latin America (not Mexico or Brazil)**

# Motivations for using UV/EB

1. Increase Productivity (1)
2. Improve Physical Properties/Performance (3)
3. Environmental Benefits (4)
4. Lower Energy Costs (2)
5. Reduce Floor Space (--)

# Current Conditions

## “Up” Over the last 6 months...

1. Inquiries/sales leads for UV or EB: **80% (74%)**
2. New UV or EB Installations: **47% (33%)**
3. Retrofits for UV or EB: **40% (27%)**

% of respondents indicating

# The 7%

Forecast growth next 3 years: 7%/yr.  
Those applications at or above 7%

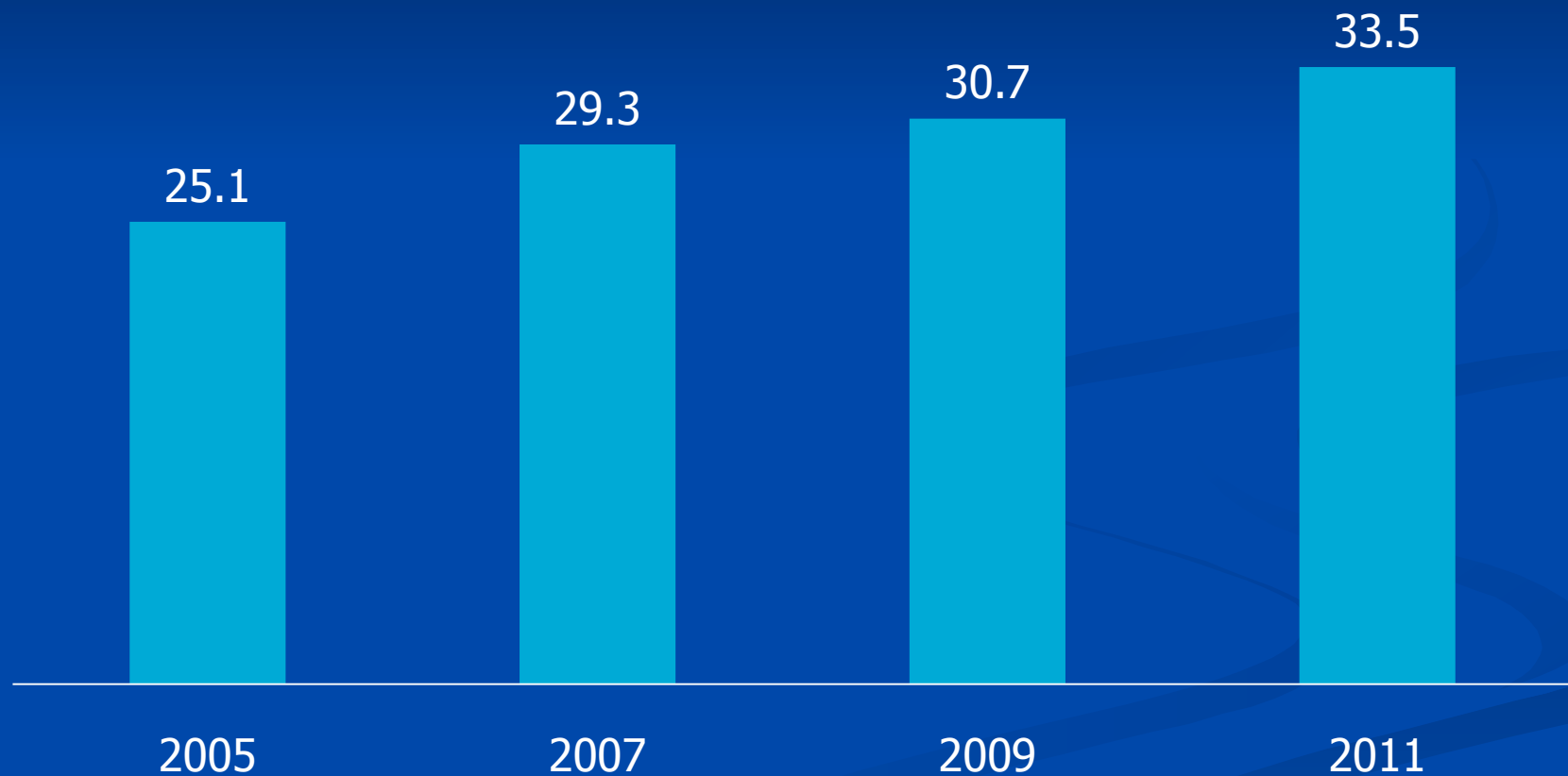
- **3D inkjet/stereolithography**
- **Barrier for conductive films & flex electronics**
- **Inkjet**
- **Plastic & metal coatings**
- **Electronics**
- **Photovoltaics**
- **Field Applied UV**
- **Sprayable 3D Coatings**
- **Water based UV/EB**
- **UV for fingernails**

# Applications Forecast Under 7%

- Screen Printing
- Printing Plates
- Letterpress
- Automotive
- Aerospace
- Wide Web Flexo
- Wood
- Vinyl Flooring

# UV/EB Graphic Arts OPV

(Usage, Thousands Metric Tons)





# UV/EB Inks

(Usage, Thousands Metric Tons)

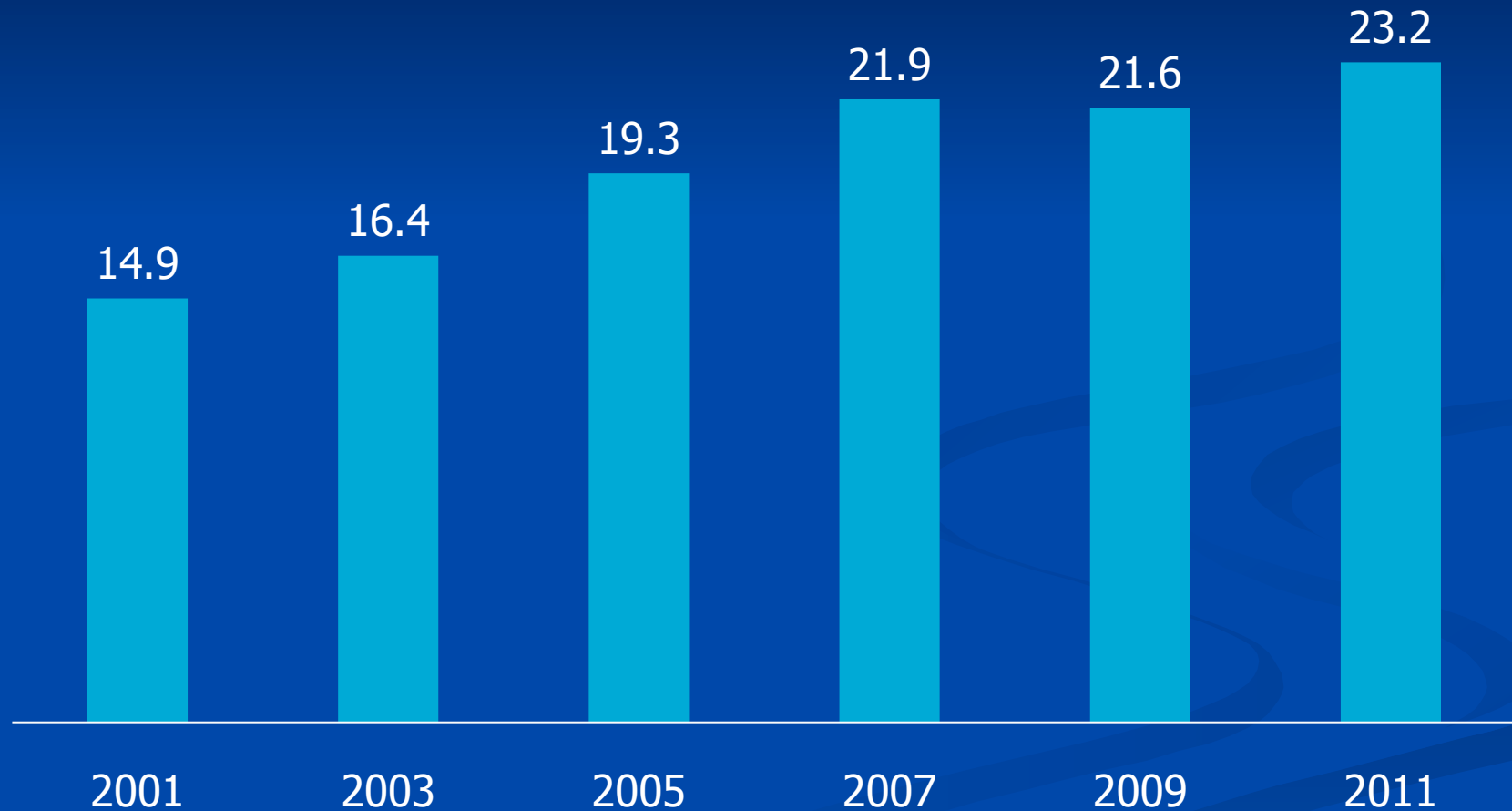


# InfoTrends Predicts Continued Strong Growth in Wide-Format UV Inkjet Revenue, \$ Billion



# UV/EB Wood Finishes

(Usage, Thousands Metric Tons)



# UV/EB Metal Finishes

(Usage, Thousands Metric Tons)



# UV/EB Adhesives (Usage, Thousands Metric Tons)



# UV LEDs

## Potential Obstacles to Adoption

1. Technical Limitations of Existing Equipment
2. Availability of LED Formulations
3. Equipment Cost is too High
4. Users Lack of Familiarity/Knowledge

# UV LEDs

Top commonplace applications  
within the next five years

- Digital Inkjet
- Screen Inks
- Flexo Inks
- Adhesives
- Field Applied Coatings



**Thank you!**

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